

**METHODS AND SYSTEMS FOR RAISING A NUMERICAL VALUE TO A  
FRACTIONAL POWER**

**ABSTRACT OF THE DISCLOSURE**

A method of calculating  $x^{M/N}$ ,  $x$  having a range and  $M$  and  $N$  integers. The  
5 range of  $x$  is partitioned into a selected number of intervals and a determination  
is made as to the interval into which  $x$  falls.  $x$  is normalized with a normalization  
factor calculated for the interval into which  $x$  falls to obtain a normalized value  $x'$   
within a normalized range. A value of  $x'^{M/N}$  is calculated over the normalized  
10 range and a value for  $x^{M/N}$  is calculated by multiplying the calculated value of  $x'$   
 $M/N$  by a renormalization factor calculated for the interval in which  $x$  falls.

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